Matts Trip

Matt finds himself in a desert with N ($2 \leq N \leq 10$) oases, each of which may have food, water, and/or a palm tree. If oasis i has food, then $F_i=1$ - otherwise, $F_i=0$. Similarly, $W_i=1$ if and only if oasis i has water, and $P_i=1$ if and only if it has a palm tree. These 3 values are completely independent of one another.

Some pairs of these oases are connected by desert paths, which each take 1 hour to traverse. There are M ($0 \leq M \leq 45$) such paths, with path i connecting distinct oases A_i and B_i in both directions ($1 \leq A_i,B_i \leq N$). No pair of oases is directly connected by more than one path, and it's not guaranteed that all oases are connected by some system of paths.

Matt starts at an oasis S, and wants to end up at a different oasis E ($1 \leq S,E \leq N$). Both of these oases are quite nice - it's guaranteed that $F_S=W_S=P_S=F_E=W_E=P_E=1$. Since he's in a hurry to get out of the desert, he wants to travel there in at most H ($1 \leq H \leq 10^9$) hours.
However, he can only survive for up to MF hours at a time without food, and up to MW hours at a time without water ($1 \leq MF,MW \leq 4$). For example, if $MF=1$ and $MW=2$, then every single oasis he visits along the way must have food (as he would otherwise spend more than 1 hour without it), and he cannot visit 2 or more oases without water in a row.

Since Matt is a computer scientist, before actually going anywhere, he's interested in the number of different paths he can take that will get him from oasis S to oasis E alive in at most H hours.
Note that there may be no such paths.
Being a computer scientist, he of course only cares about this number modulo (10^9+7).

Input

Line 1: 7 integers, N, M, H, S, E, MF, and MW

Next N lines: 3 integers, F_i, W_i, and P_i, for $i = 1..N$

Next M lines: 2 integers, A_i and B_i, for $i = 1..M$

Output

1 integer, the number of different valid paths, modulo (10^9+7)

Example 1

Input:

```
3 3 3 1 2 1 4
1 1 1
1 1 1
0 1 0
1 2
```

2 3
1 3

Output:

2

Explanation:

The two possible paths, described in terms of oases visited, are $1 \rightarrow 2$ and $1 \rightarrow 2 \rightarrow 1 \rightarrow 2$. Matt can never go to oasis 3, as it doesn't contain food, which he can't survive without for more than 1 hour. The path $1 \rightarrow 2 \rightarrow 1 \rightarrow 2 \rightarrow 1 \rightarrow 2$ is not valid, as it would take 5 hours rather than at most 3.

Note that oasis 3 is the only oasis without a palm tree.

Example 2

Input:

5 5 3 3 2 3 2
1 0 0
1 1 1
1 1 1
0 0 1
0 1 0
1 2
1 3
1 4
3 4
4 2

Output:

2

Explanation:

The two possible paths are $3 \rightarrow 1 \rightarrow 2$ and $3 \rightarrow 4 \rightarrow 2$.

This time, oases 1 and 5 are lacking in palm trees.